WHAT IS CLAIMED IS:

1. A stator assembly for an electromechanical machine, said stator assembly comprising:

a magnetically permeable stator core having a cylindrical inner surface defining a plurality of radial, axially-extending winding slots;

at least six coil groups of electrical windings, each of said coil groups having a plurality of winding coils arranged concentrically;

a predetermined number of said winding coils within each of said coil groups being singularly located in spaced apart pairs of said winding slots; and

a remaining number of said winding coils within each of said coil groups being shared in spaced-apart pairs of said winding slots along with coil sides of said winding coils in other groups.

2. A stator assembly as set forth in claim 1, wherein each of said coil groups comprises a total of six winding coils.

3. A stator assembly as set forth in claim 2, wherein two of said six winding coils within each coil group are singularly located in said winding slots and four of said six winding coils within each said coil group are shared in said winding slots.

4. A stator assembly as set forth in claim 3, wherein said stator core defines a total of forty-eight of said winding slots.

5. A stator assembly as set forth in claim 1, having a number of power leads equal to a number of said coil groups.

6. A stator assembly as set forth in claim 5, wherein an equal number of said power leads are connected to said electrical windings at each end of said stator core.

7. A stator assembly as set forth in claim 6, wherein said stator assembly has a total of six power leads, three of which are connected to said electrical windings at each end of said stator core.

8. A stator assembly as set forth in claim 1, wherein said at least six coil groups comprises a total of six coil groups arranged to provide a three-phase, two-pole stator assembly.

9. A stator assembly for an electromechanical machine, said stator assembly comprising:

a magnetically permeable stator core having a cylindrical inner surface defining a plurality of radial, axially-extending winding slots;

at least six coil groups of electrical windings, each of said coil groups having a plurality of winding coils arranged concentrically; and

a number of power leads equal to a number of coil groups, said power leads being connected to said electrical windings at each end of said stator core.

10. A stator assembly as set forth in claim 9, wherein:

said at least six coil groups comprises a total of six coil groups arranged to provide a three-phase, two-pole stator assembly; and

three power leads are connected to said electrical windings at each end of said stator core.

11. A stator assembly as set forth in claim 10, wherein each of said coil groups comprises a total of six winding coils.

12. A stator assembly as set forth in claim 11, wherein two of said six winding coils within each coil group are singularly located in said winding slots and four of said six winding coils within each said coil group are shared in said winding slots.

13. A method of producing a stator assembly for use in an electromechanical machine, said method comprising steps of:

(a) providing a magnetically permeable stator core having a cylindrical inner surface defining a plurality of radial, axially-extending winding slots;

(b) providing at least six coil groups each having a plurality of differently-sized winding coils; and

(c) inserting said coil groups into said stator core one at a time from alternating sides thereof.

14. A method as set forth in claim 13, wherein each of said coil groups are inserted in step (c) such that a predetermined number of said winding coils are singularly located in spaced apart pairs of said winding slots and a remaining number of said winding

coils are in spaced apart pairs of said winding slots along with coil sides of said winding coils in other groups.

15. A method as set forth in claim 14, wherein said at least six coil groups comprise a total of six coil groups inserted in said stator core to provide a three-phase, two-pole stator assembly.

16. A method as set forth in claim 15, wherein said coil groups are inserted in said stator core such that said winding coils that are singularly located in one said coil group are positioned adjacent to said winding coils that are singularly located of another coil group within a mutual phase.

17. A method as set forth in claim 14, wherein each of said coil groups comprises a total of six winding coils.

18. A method as set forth in claim 17, wherein two of said six winding coils are singularly located in said winding slots and four of said six winding coils are shared in said winding slots.

19. A method as set forth in claim 13, wherein an equal number of said power leads are connected to said coil groups at each end of said stator core.